Bats

Urban Wildlife Damage Control

Bats are unique and interesting animals, but their nocturnal nature makes them one of the most mysterious and misunderstood mammals in Kansas.

Bats belong to the mammalian order *Chiroptera*, which means "hand-wing." They are the only mammals capable of true flight. In terms of the number of species, *Chiroptera* is the second largest group of mammals in the world. Only the order *Rodentia* (rodents) contains more species.

Of the approximately 900 species of bats found in the world, 45 live in the United States and 15 of those have been found in Kansas. Contrary to popular belief, there are no vampire bats in Kansas. All Kansas bats feed on insects. Large numbers of bats are capable of eating tons of insects each year, making them beneficial to humans.

One species sometimes found in Kansas is the Brazilian free-tailed bat (*Tadaida braziliensis*). A Texas colony of this species has about 20 million individuals that eat 100,000 pounds of insects per night.

Kansas Bats

Little brown bat (*Myotis lucifugus*):
A brown, mouse-sized bat that infrequently occurs in eastern Kansas and may live in attics and buildings. Colonial, hibernates.

Northern long-eared bat (*Myotis septentrioralis*):
Similar in size and appearance to the little brown bat, except that the ears extend beyond the nose when flattened forward against the head. A resident of eastern Kansas but uncommon.

Big brown bat (*Eptesicus fuscus*):
A large bat, perhaps twice the size of the little brown bat, but still weighing only ½ ounce. Probably the most common and widespread bat in Kansas in buildings and attics where it may hibernate. Colonial.

Silver-haired bat (*Lasionycteris noctivagans*):
Slightly larger than the little brown bat, but smaller and less common than the big brown bat. Fur is dark, nearly black, with white-tipped hairs. Seasonally solitary, migrates.

Eastern Pipistrelle bat (*Pipistrellus subflavus*):
Our smallest bat, yellowish-brown with pink arms, only 3 inches long. Not commonly found in buildings. Prefers caves, abandoned mines and rock crevices. Solitary, hibernates.

Red bat (*Lasiurus borealis*):
About the same size as the big brown bat, but fur is rusty red and may be washed with white. Seeks daytime refuge in trees. Solitary, migrates.

Brazilian free-tailed bat (*Tadarida brasiliensis*):
Has strong musty odor. Has been found in most counties of Kansas and roosts in buildings. Highly gregarious. Disperses widely. Migrates.

Cave Myotis (*Myotis velifer*):
Sometimes roosts in buildings. Found in south-central and southwestern Kansas. Roost in large colonies in caves or mines. Hibernates.

Gray Myotis (*Myotis grisescens*):
Similar to cave myotis, but found only in southeastern Kansas. An endangered species.

Western small-footed Myotis (*Myotis ciliolabrum*):
Uncommonly found in northwestern Kansas. Roosts in rocky bluff cracks, old swallow nests and abandoned buildings. Colonial, hibernates.

Evening bat (*Nycticeius humeralis*):
Found in the eastern two-thirds of Kansas during the spring, summer and autumn. This bat is occasionally found roosting in buildings. Migrates south in winter.

Western big-eared bat (*Corynorhinus townsendii*):
This bat is a year-round resident in the gypsum caves in the Red Hills of southwestern Kansas. May roost in buildings, but hibernates singly or in small clusters. Especially sensitive to disturbance.

Pallid bat (*Antrozous pallidus*):
Found rarely in gypsum canyon systems of the Red Hills of western Barber County. Roosts primarily in rocky bluff cracks and caves, but has

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roosted in buildings. It usually lands on the ground to capture arthropods. Hibernates in small clusters.

Big free-tailed bat (*Nytinomops macrotis*):
Related to the Brazilian free-tailed bat. Found a few times in southwestern Kansas. Emits a sharp, piercing call while feeding.

Hoary bat (*Lasiurus cinereus*):
The largest bat in Kansas. Has a 15-inch wingspan and weighs about 1 ounce. Grayish yellow-brown color, overcast with grayish white. Prefers northern forests, but is found occasionally in Kansas. Solitary, migrates.

Biology and Habits

Bats found in Kansas are members of two families, *Vespertilionidae* and *Molossidae* (free-tailed bats). Kansas is the northern part of some species' range and is home throughout the year for others. Other bats are migratory and pass through during the spring and fall.

Most Kansas bats are small. One group of small bats are the *Myotis* or mouse-eared bats with a body length of only 3 to 4 inches. The largest bat in Kansas is the hoary bat (*Lasiurus cinerus*). The hoary bat's body is less than 5 inches long, but it can develop a wingspan of 16 inches and fly at speeds exceeding 50 mph.

Bats naturally roost in the leaves of trees, in caves or under loose tree bark during the day, but many species prefer to roost in or around buildings. Depending on the species, bats become active during the twilight hours or shortly after dark. When bats leave the roost, they normally fly to a source of water before feeding. Some species feed occasionally throughout the night, but most feed around sundown and then again before daylight.

Bats found in Kansas locate insects and avoid obstacles during flight by echolocation, which is similar to radar or sonar. A sound emitted by the bat bounces off insects or objects and returns to the bat's ears. Echolocation is unique to bats and some species of dolphins and whales, and enables bats to catch insects in flight. Most of the high-frequency sounds emitted by bats for echolocation are inaudible to humans, although many bats make sounds that humans can hear.

By the first frost, bats begin to prepare for winter. Some species migrate south. Migration distance may vary from a few miles (if a suitable cave is nearby) to 1,600 miles. Bats mate as they gather near caves in which they will hibernate. Although bats mate in the fall and winter, the females do not give birth until mid-May through mid-July. Most bats only give birth to one or two young, but a few may produce three or four annually.

Young bats grow rapidly and most are capable of flight three to four weeks after they are born. They are weaned one to two weeks later. Bats often live 10 years or more, and some live as long as 30 years.

Urban Bat Problems and Control Measures

Although bats cause little damage to buildings, their presence is usually unwanted. Bat droppings and urine have a strong, persistent odor that attracts other bats if the area is not properly cleaned. CAUTION: If any amount of bat droppings are present, wear a dust mask while cleaning to avoid breathing fine dust particles from disturbed droppings. Histoplasmosis is an airborne disease caused by a microscopic soil fungus, *Histoplasma capsulatum*, which affects the lungs of humans.

Noise is another problem bats cause inside buildings. Many bats create noise that can be disturbing to humans. Occasionally, a bat may get into the living area of a house (Figure 1). While this is often disconcerting to the occupants, it doesn't have to be. The bat will often leave at dusk if doors or windows are left open. Do not try to capture the bat unless you are wearing heavy leather gloves or using a net.

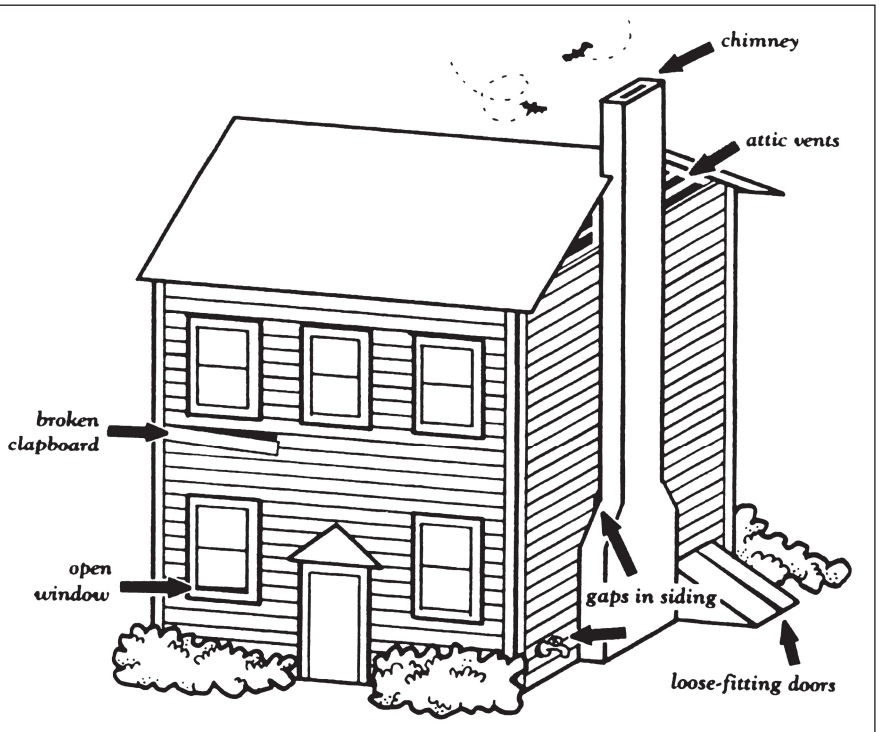

Figure 1. Places bats can get into a house.

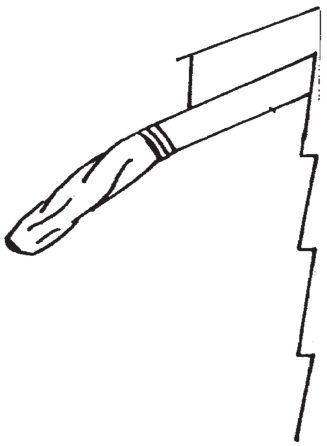

Figure 2. A batproofing valve is placed over a hole in a structure.

If bats are roosting in an attic, place one or two bright lights in the area to encourage them to leave. High-wattage lights create a lot of heat. Use caution to avoid starting a fire.

Excluding bats from a dwelling is the only long-term solution. Have several people watch the outside of the house around dusk to locate areas where bats are exiting. After all bats have left the house, close the openings. Because small bats such as the Eastern Pipistrel (*Pipistrellus subflavus*) can crawl through an opening as small as ⅜ of an inch in diameter, all openings such as cracks, vents or holes in the siding should be plugged or covered with ¼-inch hail screen.

If bats are leaving the building in numerous places, plug or cover all of the openings except one or two. Observe the openings for two or three evenings to make sure all bats are out of the building before closing them. To avoid trapping young bats inside, do not plug or cover all entrances from mid-May to mid-July. Dead bats can create an objectionable odor.

The best time of the year for bat-proofing a house is between November and March. One way is to install a "Constantine's bat-proofing valve." This device, made of a rigid base tube with an outer pliable sleeve attached, is placed over the entrance hole allowing bats to exit the dwelling but not re-enter (Figure 2).

Diseases

Harboring bats in homes and schools should be discouraged because on rare occasions a bat may develop paralytic rabies and fall within reach of children and pets. Rabies is the most important public health hazard associated with bats, but its effect has been exaggerated. Whether or not the bat is infected, a house bat will not attack when molested, but it will bite defensively if handled.

To keep bats from living in buildings, seal entry holes after bats have left. Wear gloves and get an antirabies vaccine if you bat-proof when bats are present.

Histoplasmosis is another disease humans may contract from bats. This airborne disease, caused by a microscopic soil fungus sometimes present with bat droppings, affects the lungs with symptoms similar to influenza. To avoid contracting histoplasmosis, wear a respirator or dust mask while cleaning bat droppings.

Like many other animals, bats cause problems when they conflict with humans. When this happens, control measures, not necessarily lethal, should be taken to solve the problem. The presence of bats in the area or neighborhood is not detrimental. Bats provide many more benefits than most people realize.

Some people place bat houses around their dwellings to provide a roost for bats and reduce the chances of them using their attic. Plans for building a bat house are in Figure 4. Commercially made bat houses are also available.

For Further Reading

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"Bats of America," R.W. Barbour and W.H. Davis. 1969. The University of Kentucky Press, Lexington, KY. 1969.

"Bats of the United States," M.J. Harvey, J.S. Altenbach and T. L. Best. 1999. Arkansas Game and Fish Comm. and U.S. Fish and Wildlife Service.

"The Bat House Builders Handbook," M.D. Tuttle and D. L. Hensley. 1993. Bat Conservation International, Austin, TX.

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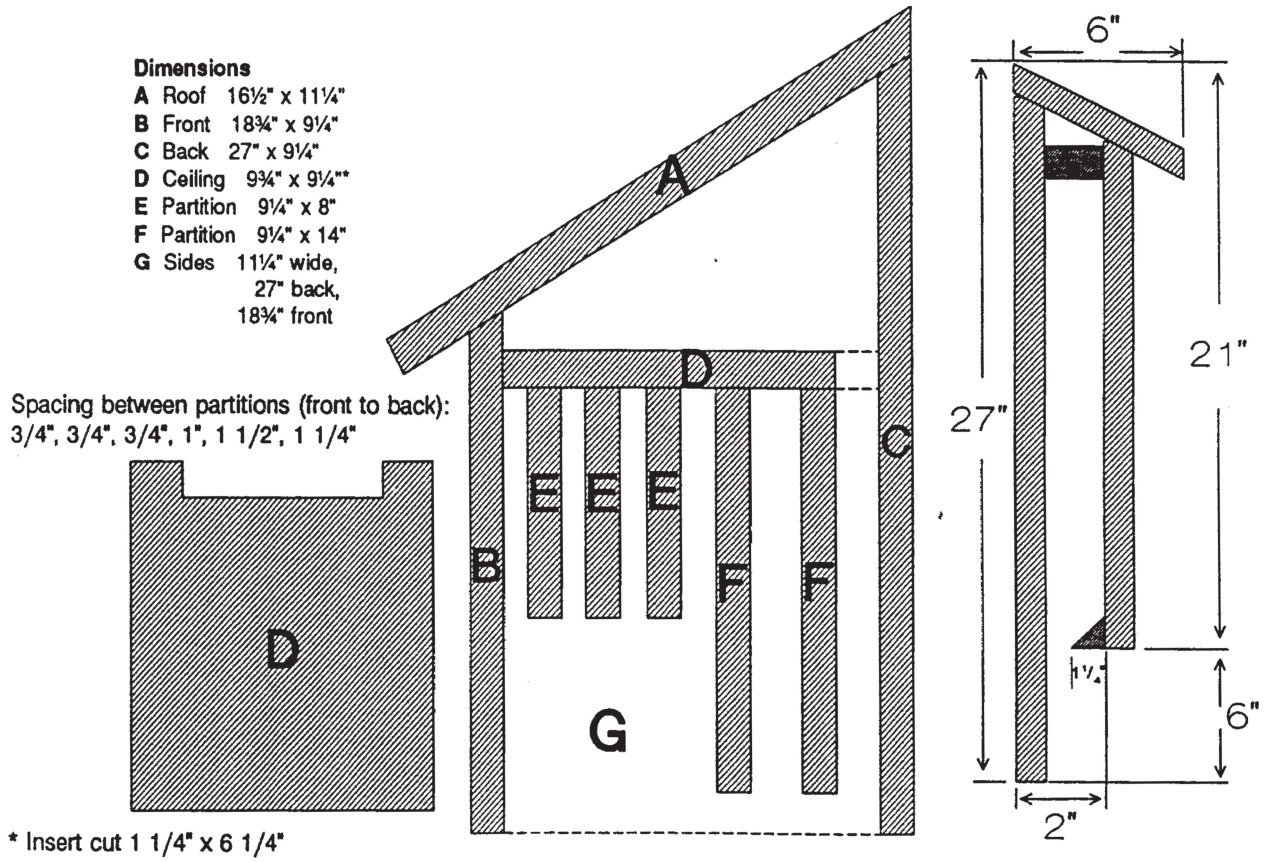
Figure 3. Big brown bats may use buildings year-round.

Figure 4. Plans for constructing a bat house.



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L-855 March 2005

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